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(54) Semi-automated operator assistance telecommunication calls

(57) An operator assistance call handling arrangement is disclosed featuring the use of an intelligent telecommunications station (intelligent phone) for the collection and transmission of call data to an operator assistance system for setting up a call without the intervention of an operator. The intelligent phone is equipped to handle CCITT (International Consulative Committee for Telephone and Telegraph) standard Layer 3 (Q.931) call control messages defined for message associated user-to-user information (MA-UUI). The operator assistance system is part of a central telephone office switching system, and is connected to the intelligent phone via an integrated services digital network (ISDN) basic rate interface (BRI). For station-to-station (station) collect calls, person-to-person (person) calls including collect and calling card calls, and bill-to-third party calls, a calling (back) party enters information identifying the class of charge (COC) and other call data at the intelligent phone, which formats the information into a user-to-user information element (UUIE). The intelligent phone then places the UUIE comprising the call information into a Q.931 SETUP message and sends the SETUP message over a ISDN D-channel to the switching system system comprising the operator assistance system to set up an ISDN B-channel call between the back party and a called (forward) party. By utilizing the COC information, connections for collect, person and bill-to-third party calls are set up without the intervention of an operator. Later, when the operator assistance system seizes an operator position to service the call after the call has been answered by the forward party, the call data is automatically displayed for the operator.

A time and charges information delivery arrangement is also disclosed utilizing an intelligent telecommunications station (intelligent phone) for displaying that information after a termination of a call. The intelligent phone is equipped to handle CCITT (International Consultative Committee for Telephone and Telegraph) standard Layer 3 (Q.931) call control messages defined for message associated user-to-user information (MA-UUI), and is connected to a central telephone office switching system via an integrated services digital network (ISDN) basic rate interface (BRI). After an operator assistance call is terminated, the operator assistance system that processed the call sends a Q.931 SETUP message to the intelligent phone over an ISDN signaling channel (D-channel). The message includes a data block, comprising time and charges information. When the intelligent phone receives the message, it ignores the call setup request, and simply displays the information sent in the message. Thus, without any action by an operator, a public telephone customer receives time and charges information for the terminated call, without establishing a new call (B-channel call) between the operator assistance system and the intelligent phone.

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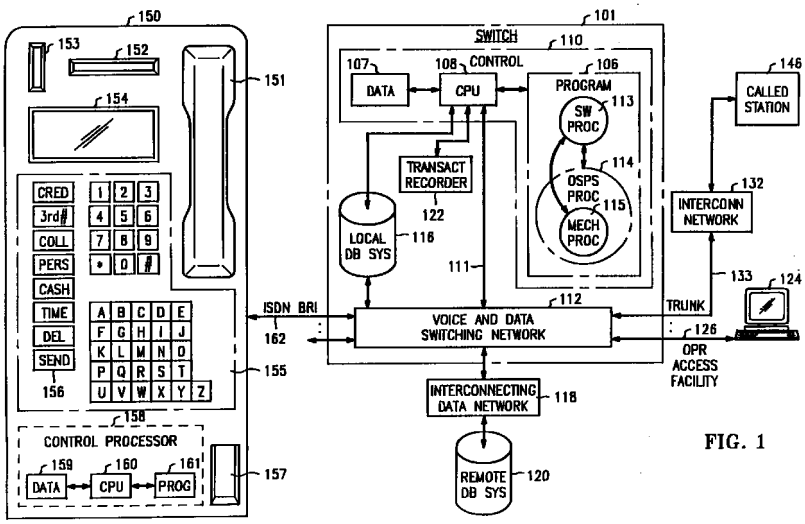
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TIME
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* 0 #
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F G H I J
K L M N O
P Q R S T
U V W X Y Z
155
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CONTROL PROCESSOR
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DATA
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PROG
157
ISDN BRI
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SWITCH
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110
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CPU
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PROGRAM
SW PROC
113
114
OSPS PROC
115
MECH PROC
TRANSACT RECORDER
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LOCAL DB SYS
116
111
112
VOICE AND DATA SWITCHING NETWORK
INTERCONNECTING DATA NETWORK
118
REMOTE DB SYS
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146
CALLED STATION
132
INTERCONN NETWORK
133
124
TRUNK
126
OPR ACCESS FACILITY

FIG. 1

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EUROPEAN SEARCH REPORT

Application Number
EP 97 10 1266

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
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A	PATENT ABSTRACTS OF JAPAN vol. 011, no. 249 (E-532), 13 August 1987 (1987-08-13) & JP 62 061461 A (TOSHIBA CORP), 18 March 1987 (1987-03-18) * abstract *		

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
THE HAGUE	3 November 1999	Vandevenne, M

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 97 10 1266

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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03-11-1999

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82